Master of Science in Computer Science (MSCS)

Fall Orientation

September 12, 2019
Outline

• Graduate programs
• MSCS General
  – Graduate research project
• MSCS-SE
• MSCS-DS
• Class registration
• Preparatory courses (MSCS prerequisites)
• Internship
• Academic performance, advising, fellowship opportunities, & clubs
• Q & A
Graduate Programs

• MSCS General
  – Course only option
    • A Seminar (CPSC 5890) + a fourth elective
  – Research project option
    • A research project (CPSC 5990, 2 quarters)

• MSCS-SE
  – Software Engineering Specialization
  – A two-quarter-long, industry-sponsored capstone project

• MSCS-DS
  – Data Science Specialization
  – A one-quarter-long, real world data science capstone project
MSCS General Degree Requirements

**Required Courses** (22 credits)

- Applied Algorithms CPSC 5600/5610
- Software Arch. & Design CPSC 5200
- Systems CPSC 5510/5520
- Software Development CPSC 5240/5250/5300/5400/5700

**Course option**
CPSC 5890 Seminar (B- or better) + one CPSC elective

**Research option**
CPSC 5990 Graduate Research Project (B- or better, 2 quarters)

**Other Electives**
- Graphics CPSC 5700
- Special Topics CPSC 5910
- Software as a Service CPSC 5240
- Mobile Software Dev. CPSC 5250
- AI CPSC 5610
- Physical DB Design & Opt. CPSC 5300
- Compiler CPSC 5400
- Parallel Computing CPSC 5600
- Computer Networks CPSC 5510
- Distributed Systems CPSC 5520

**CPSC Electives** (15 credits)

**Min. Credits: 45**

**Choose One**
- Microsystems CPSC 5100
- Electrical Engineering CPSC 5799

**MSCS General Degree**

**College of Science and Engineering**

**Computer Science**

**Seattle University Graduate Programs**
MSCS General: Graduate Research Project

• 8 Credits, spanning over two quarters

• Supervised by a project advisor

• Deliverables
  – A technical paper
  – A final presentation

• Standardized procedure
  – Request form (needs dept. approval)
  – MSCS Research Project Guidebook for Faculty and Students
  – URL: https://www.seattleu.edu/scieng/computer-science/projects/grad-research/
### MSCS General: Typical Schedule

#### Full-time

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MSCS – SE
MSCS-SE Degree Requirements

Min. Credits: 45

Required Courses
(40 credits)

A CPSC Elective
(5 credits)

Other Electives
CPSC 5100 – 5799
(5 credits)

Graphics
CPSC 5700

Special Topics
CPSC 5910

Software as a Service
CPSC 5240

Mobile Software Dev.
CPSC 5250

CPSC 5300

Compiler
CPSC 5400

Parallel Computing
CPSC 5600

AI
CPSC 5610

Computer Networks
CPSC 5510

Distributed Systems
CPSC 5520

CPSC 5100
Agile Software Requirements

CPSC 5210
Software Testing and Debugging

CPSC 5810
Capstone Project I (4)

CPSC 5820
Capstone Project II (4)

Ethics
CPSC 5800

Software Arch. & Design
CPSC 5200

Applied Algorithms
CPSC 5600/5610

Systems
CPSC 5510/5520

Software Development
CPSC 5240/5250/5300/5400/5700

CPSC Elective
(5 credits)

MSCS - SE Degree Requirements

Min. Credits: 45

Required Courses
(40 credits)

A CPSC Elective
(5 credits)

Other Electives
CPSC 5100 – 5799
(5 credits)

Graphics
CPSC 5700

Special Topics
CPSC 5910

Software as a Service
CPSC 5240

Mobile Software Dev.
CPSC 5250

CPSC 5300

Compiler
CPSC 5400

Parallel Computing
CPSC 5600

AI
CPSC 5610

Computer Networks
CPSC 5510

Distributed Systems
CPSC 5520

CPSC 5100
Agile Software Requirements

CPSC 5210
Software Testing and Debugging

CPSC 5810
Capstone Project I (4)

CPSC 5820
Capstone Project II (4)

Ethics
CPSC 5800

Software Arch. & Design
CPSC 5200

Applied Algorithms
CPSC 5600/5610

Systems
CPSC 5510/5520

Software Development
CPSC 5240/5250/5300/5400/5700

CPSC Elective
(5 credits)
MSCS-SE: Software Engineering Project

• Teams of 4 or 5 students

• Industry sponsored, using an agile development process

• Substantial team responsibility for working with sponsor to determine requirements

• Must be taken in two consecutive quarters

• Not expected to be possible to start every quarter
MSCS-SE: Typical Schedules

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MSCS – DS
MSCS-DS Degree Requirements  Min. Credits: 48

Required Courses (43 credits)

CPSC 5600 Parallel Computing
CPSC 5340 Text Processing & Search
CPSC 5350 Social Media Analytics
MATH 5315 Mathematical Foundations of Data Science (3)
CPSC 5305 Intro to Data Science (2)
CPSC 5310 Machine Learning (5)
CPSC 5320 Visual Analytics (3)
CPSC 5330 Big Data Analytics (3)
Ethics CPSC 5800
Software Arch. & Design CPSC 5200
Applied Algorithms CPSC 5610 AI
Systems CPSC 5520 Dist. Sys.
Software Development CPSC 5240/5250/5300/5400/5700

A DS Elective (5 credits)

Compiler CPSC 5400
Mobile Software Dev. CPSC 5250
Graphics CPSC 5700
Software as a Service CPSC 5240
Physical DB Design & Opt. CPSC 5300

Min. Credits: 48
MSCS-DS

CATEGORICAL REQUIREMENTS
- Applied Algorithms: Must take CPSC 5610 AI
- Systems: Must take CPSC 5520 Distributed Systems

ADDITIONAL REQUIRED COURSES
- MATH 5315 – Mathematical Foundations of Data Science (3 credits)
- CPSC 5305 – Intro to Data Science (2 credits)
- CPSC 5310 – Machine Learning (5 credits)
- CPSC 5320 – Visual Analytics (3 credits)
- CPSC 5330 – Big Data Analytics (3 credits)
- Data Science Elective (5 credits)

PROJECT
- CPSC 5830 – Data Science Capstone Project
MSCS-DS

• Brand new in Fall 2019.

• Due to course sequencing and scheduling, *full time students can only start in fall*.

• Additional prerequisite: *Calculus sequence* (needed for the math course)

• Students not in the specialization may take the *2-credit Intro to Data Science* course and a *3-credit analytics course* to satisfy a 5-credit elective.
## MSCS-DS: Typical Schedules

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Class Registration

• **Nov 12**: registration begins for Winter 2020

• Will be piloting a new registration system – more details will follow.

• If a class is closed or you cannot register, please fill out waitlist form available from CS website.
Preparatory Courses / MSCS Prerequisites

• 6 graduate certificate courses (3 credits each)
  – CPSC 5011 Object-Oriented Concepts
  – CPSC 5021 Database Systems
  – CPSC 5031 Data Structures & Algorithms
  – CPSC 5041 Computing Systems Principles I
  – CPSC 5042 Computing Systems Principles II
  – CPSC 5051 Fundamentals of Software Engineering

Conditional admission: Must complete the required prerequisite(s) with a grade of B or better within the first year
Internships

• How many credits you can register?
  – 1 credit: at least 100 hours per quarter, working part-time (max of 20 hours/week)
  – 2 credits: at least 150 hours per quarter, working part-time (max of 20 hours/week)
  – 3 credits: at least 200 hours per quarter, working full-time (max of 40 hours/week)

International students must maintain full-time status except during vacation quarters
Internships

• Before starting your internship
  – Identify a faculty sponsor/advisor
  – Submit the following docs to the dept for approval
    • Internship offer letter
    • Internship request form (CPSC 5950 Internship) for course registration
    • CPT support letter/form for international students
Internships

• After starting your internship
  – Internship Weekly Report
  – Project Agreement Form
  – Project Completion Form
  – Intern Evaluation Form

All are required to receive credit(s) for your internship!

• Internship Guidebook
  – URL: https://www.seattleu.edu/scieng/computer-science/student-resources/internships/
Academic Performance, Probation & Dismissal

• Will be on **probation** with cumulative and/or term GPA is < 3.0

• Immediate actions
  – Review your schedule with your advisor to make any necessary changes to your course load.
  – Review university policies regarding progression and course repeats
  – Arrange to meet with an advisor in the S&E Advising Center

• Conditions for removal from probation
  – You must earn a term GPA ≥ 3.0
  – You must earn no grade below B

• Failure to improve academic performance including violation of probation conditions could ultimately lead to **dismissal**
Advising

• Advising period
  – Oct 21 - Nov 8 for Winter 2020

• Meet with your advisor each quarter
  – Discuss your programs of study
  – Course selection & schedule planning

• Advising is required to remove advising holds for class registration
SUOnline

• A useful online tool
  – Program evaluation
  – Advising notes
  – Restrictions/holds
    • International Student Center hold
      – New MSCS student must contact ISC before class registration
    • Advising hold
      – Must meet with your advisor
      – You have to get them removed before class registration

• Will be replaced during 2019-20.
International Students

• Must maintain a full-time status (a minimum of 9 credits) except for the graduating quarter

• All international students can work on-campus for a maximum of 20 hours per week

• Main contact: ISC
Fellowship Opportunities

• Contact: Office of Fellowships
  – https://www.seattleu.edu/fellowships/
ACM Student Chapter

Women in Technology

https://www.seattleu.edu/scieng/computer-science/activities/
A Few More ...

• 6 Year Limit
  – All degree requirements must be completed within six years after course work is begun

• SU has an academic honesty code
  – See SU Graduate Bulletin of Information

• Must maintain a Cumulative GPA of 3.0 or better

• Must attain a grade of C or better in all courses
  – Courses graded C- or below must be repeated
  – Graduate projects & CPSC 5890 Seminar requires B- or better!

• You must apply for graduation